

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1.-20. (canceled)

21. (new): A method for treating a drilled well, the method comprising the steps of:

positioning distributed temperature sensors on a fiber along an interval within a well,

wherein the distributed temperature sensors provide substantially continuous

temperature monitoring along the interval;

obtaining a baseline temperature profile across the interval;

monitoring substantially continuously the temperature along the interval;

calculating a differential temperature profile across the interval relative to the baseline

temperature profile;

injecting a fluid into the well and into one or more zones surrounding the interval;

shutting-in the well until the temperature in the well substantially stabilizes;

monitoring the shut-in temperature along the interval during the shut-in period;

determining the shut-in temperature deviation relative to the baseline temperature profile

across the interval; and

determining the one or more formation zones in which the injected fluid flowed.

22. (new): The method of claim 21, further comprising the step of determining the shut-in temperature deviation relative to the differential temperature profile measured prior to the shut-in.
23. (new): The method of claim 21, further comprising the step of determining the volume of the fluid injected into the one or more zones.
24. (new): The method of claim 21, wherein the fiber has a bottom end including a temperature sensor for substantially continuous monitoring of bottom-hole temperature.
25. (new): The method of claim 21, wherein the fiber has a bottom end, the bottom end including a temperature sensor for substantially continuous monitoring of bottom-hole temperature and a pressure sensor for measuring for substantially continuous monitoring of bottom-hole pressure.
26. (new): The method of claim 21, wherein the fiber has a bottom end including a pressure sensor for substantially continuous monitoring of bottom-hole pressure.
27. (new): The method of claim 21, further including the step of injecting a subsequent fluid pursuant to the step of determining the zone of injection of the prior injected fluid.

28. (new): The method of claim 21, further including the steps of:

injecting a diverter into the well pursuant to the step of determining the zone of injection
of the prior injected fluid; and

injecting a subsequent fluid pursuant to the step of determining the zone of injection of
the prior injected fluid.

29. (new): The method of claim 21, wherein the fluid is a matrix treatment agent.

30. (new): The method of claim 21, wherein the fluid is a matrix acidizing agent.

31. (new): The method of claim 21, wherein the fluid is a fracturing agent.

32. (new): The method of claim 21, wherein the fluid is an acid fracturing agent.

33. (new): The method of claim 21, wherein the fluid is a gravel packing agent.

34. (new): A method for treating a drilled well, the method comprising the steps of:

positioning distributed temperature sensors on a fiber along an interval within a well
surrounded by one or more formation zones, wherein the distributed temperature
sensors provide substantially continuous temperature monitoring along the
interval;
obtaining a baseline temperature profile across the interval;
monitoring substantially continuously the temperature along the interval;
calculating a differential temperature profile across the interval relative to the baseline
temperature profile;
injecting a fluid non-reactive with the one or more formation zones into the well and the
one or more formation zones;
calculating the injectivity of the one or more formation zones based on temperature
profile along the interval during the step of injecting the non-reactive fluid;
injecting a fluid reactive to the one or more formation zones into the well and into one or
more formation zones surrounding the interval pursuant to the calculating the
injectivity step;
shutting-in the well until the temperature in the well substantially stabilizes;
monitoring the shut-in temperature along the interval during the shut-in period;
determining the shut-in temperature deviation relative to the baseline temperature profile
across the interval; and
determining the one or more formation zones in which the injected fluid flowed.

Appl. No. 10/604,515

Amdt. dated 10/12/2005

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35. (new): The method of claim 34, further comprising the step of determining the shut-in temperature deviation relative to the differential temperature profile measured prior to the shut-in.

36. (new): The method of claim 34, further including the step of injecting a diverter into the well pursuant to the step of determining the injectivity of the one or more formation zones relative to the injecting of the non-reactive fluid.

37. (new): The method of claim 34, further comprising the step of determining the volume of the reactive fluid injected into the one or more zones.

38. (new): The method of claim 34, further including the step of injecting a subsequent fluid pursuant to the step of determining the zone of injection of the prior injected fluid.

39. (new): The method of claim 34, further including the steps of:

injecting a diverter into the well pursuant to the step of determining the zone of injection

of the prior injected fluid; and

injecting a subsequent fluid pursuant to the step of determining the zone of injection of

the prior injected fluid.

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40. (new): The method of claim 34, further including the steps of:

injecting a diverter into the well pursuant to the step of determining the one or more

formation zones of injection of the prior injected reactive fluid; and

injecting a subsequent fluid pursuant to the step of determining the zone of injection of

the prior injected reactive fluid.